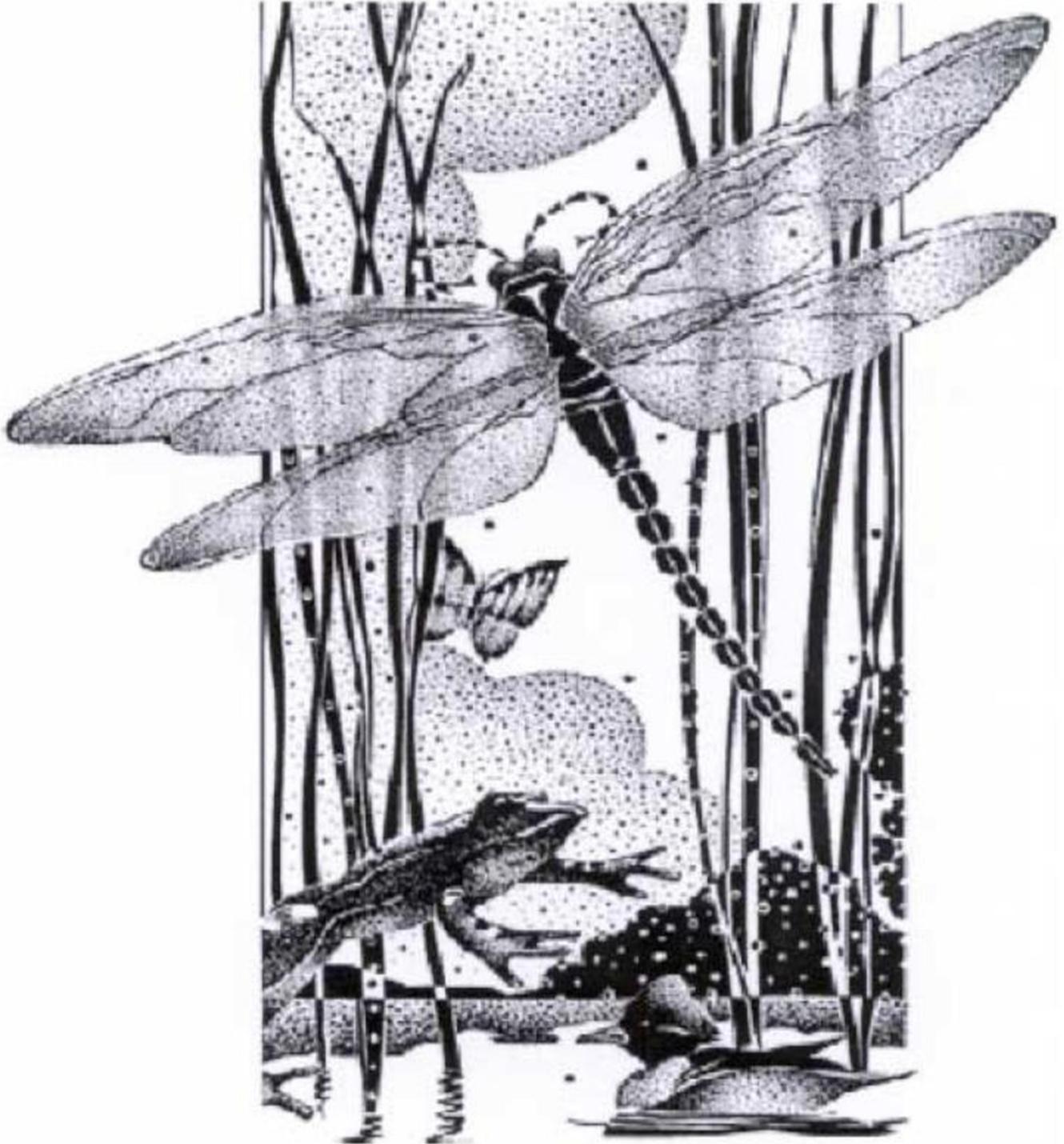




# Wetland Walk Manual

A Guidebook for Citizen Participation



Adapted from US EPA's Region 10 (EPA 910/R-009)



# Volunteering for Wetlands

## **Bossier Parish Wetland Reserve Project**

The [USDA's Natural Resources Conservation Service](#) and the [Bodcau Soil and Water Conservation District](#) in Louisiana worked with five landowners to help them enroll four contiguous tracts of land, a total of about 2,500 acres, in the Wetlands Reserve Program. The land had been in cropland, pasture, and woodland but was not very productive from an agricultural standpoint because of flooding problems. Once this land was set aside and protected, volunteers from schools, community organizations, and a local Air Force base came together to help protect and restore the wetland areas.

## **J. Larry Newton School Wetland Restoration Project**

### **EPA Supported Five STAR Project**

In Fairhope, Alabama, the [Mobile Bay National Estuary Program](#), in partnership with EPA, local businesses, schools, nonprofit groups, conservation agencies, and a youth conservation corps, are restoring wetlands adjacent to the newly constructed J. Larry Newton School. The restored wetlands will be a living laboratory for the students and a demonstration project for landowners interested in wetland restoration.

## **Can Volunteers Protect Wetlands?**

*Government regulations and zoning restrictions are not enough to protect wetlands. Citizens must also become involved. Volunteers that demonstrate concern and devote time to protecting wetlands can make a big difference. In fact, volunteers have already halted wetland degradation and reduced the number of threatened wetlands in communities around the country. We all have a responsibility to protect and restore wetlands, and by working together we can make a difference.*



## **How Do Volunteers Make a Difference?**

Local citizens not only provide the extra workforce necessary to assess the health of and threats to our wetlands but also serve as some of the most powerful advocates for protecting wetland habitat. Volunteer efforts to improve our environment have been gaining momentum over the past 20 years. Volunteer groups are growing in strength and number in many states across the country. These groups would certainly welcome your assistance, or you could even start a group in your own community. Whether you work on your own or with a group, you can help wetlands by working to preserve and protect them, monitoring and assessing their health, and restoring them. There are ways to help.

## **Wetland Preservation and Protection**

When volunteers work to protect local wetlands, they greatly improve the chances that those wetlands will be valued by the community. You can help local conservation and restoration efforts by influencing local and regional environmental policy. By educating others about the functions and values of wetlands, you can empower them to become involved in wetland protection. For example, many landowners have voluntarily enrolled wetland areas on their property in the USDA's Wetland Reserve Program, which provides technical and financial support to landowners. You could also join the Izaak Walton League of America in its American Wetlands Month celebration every May. The League offers

American Wetlands Month kits on the Internet to help local groups initiate on-the-ground projects. The kits include fact sheets on wetlands, project ideas, contact information, case studies of projects from across the country, and links to many informative wetland sites. For more information on American Wetlands Month, visit the web site at [www.iwla.org/SOS/awm](http://www.iwla.org/SOS/awm).

## **Wetland Assessment and Monitoring**

Volunteer monitors often make critical observations and measurements that help assess the health of a wetland. Monitoring wetland characteristics such as plants, soils, hydrology, and wildlife helps us better understand wetland functions and track changes in wetland ecosystems. To become involved in wetland



Anna Hicks

These volunteers are learning how to assess wetland habitat.

monitoring and assessment, contact your local extension service or join a local citizens group involved in wetland monitoring. Working with these groups, you can address data gaps that exist in the current monitoring system in your area. If no local organizations are involved in wetland monitoring, you can help to educate local officials about the importance of wetlands and encourage them to set aside funding to support wetland monitoring.

### Wetland Restoration

Through their dedication, volunteers increase awareness of the importance of wetlands and create a foundation for active restoration of previously degraded wetlands. By staying involved in local issues and serving as a source of information for others, you can reinforce the importance of wetland restoration and ensure that restoration projects get local support. To

further your efforts, you can join citizen groups that sponsor restoration projects and help with hands-on restoration work like planting native wetland plants. You can also make a difference by raising funds or recruiting additional volunteers from youth groups, church groups, schools, and other sources.

#### **Massachusetts North Shore Salt Marsh Assessment**

In the summer of 1999, a volunteer-staffed pilot monitoring program began along the Massachusetts coast, with the support of local organizations, the state, and EPA. Using a curriculum written by the [University of Massachusetts Cooperative Extension](#), the program developed a series of citizen monitoring workshops that focused on using six wetland parameters—birds, plants, water chemistry, land use, tidal influence, and benthic macroinvertebrates—to assess a wetland's health. Their outreach and education efforts drew 50 new volunteers. The training program is being revised, using feedback from the volunteers, and will eventually be used throughout New England to train other citizen groups to monitor wetlands. For more information, visit the web site at [www.mvpc.org/services\\_sec/mass\\_bays/8T&B\\_volunteers.htm](http://www.mvpc.org/services_sec/mass_bays/8T&B_volunteers.htm).

### *The Wetland Fact Sheet Series*



[Wetlands Overview](#)

[Types of Wetlands](#)

[Functions & Values of Wetlands](#)

[Threats to Wetlands](#)

[Wetland Restoration](#)

[Funding Wetland Projects](#)

[Wetland Monitoring & Assessment](#)

[Sustainable Communities](#)

[Volunteering for Wetlands](#)

[Teaching about Wetlands](#)

For more information, visit [www.epa.gov/owow/wetlands](http://www.epa.gov/owow/wetlands).

## *Wetland Resources*

### **On the Internet:**

- Volunteer Monitor Newsletter Site* ..... [www.epa.gov/owow/monitoring/volunteer/vm\\_index.html](http://www.epa.gov/owow/monitoring/volunteer/vm_index.html)
- Izaak Walton League of America* ..... [www.iwla.org](http://www.iwla.org)
- USDA's Backyard Conservation Guide* ..... [www.nrcs.usda.gov/feature/backyard](http://www.nrcs.usda.gov/feature/backyard)
- National Audubon Society* ..... [www.audubon.org](http://www.audubon.org)
- Frog Watch* ..... [www.frogwatch.org](http://www.frogwatch.org)

### **In Print:**

- Handbook for Wetlands Conservation and Sustainability*, 1998. Available from the Izaak Walton League of America, 707 Conservation Lane, Gaithersburg, MD 20878. Call (800) BUG-IWLA or e-mail [sos@iwla.org](mailto:sos@iwla.org).
- Monitoring Wetlands: A Manual for Training Volunteers*, T. Miller, C. Bertolotto, J. Martin, and L. Storm, 1996. Available from Adopt-a-Beach, 4649 Sunnyside Ave., N, Rm 305, Seattle, WA 98103. Call (888) 57-BEACH.
- National Directory of Volunteer Environmental Monitoring Programs* (EPA 841-B-98-009), U.S. Environmental Protection Agency, 1998. Available on-line at [yosemite.epa.gov/water/volmon.nsf](http://yosemite.epa.gov/water/volmon.nsf).
- Volunteer Wetland Monitoring: An Introduction and Resource Guide* (EPA 843-B-00-001), U.S. Environmental Protection Agency, 2000. Available on-line at [www.epa.gov/owow/wetlands](http://www.epa.gov/owow/wetlands).
- Wetland Walk Manual: A Guidebook for Citizen Participation* (Manual and Worksheets), U.S. Environmental Protection Agency, 1996. Available on-line at [www.epa.gov/owow/wetlands/wetwalk.pdf](http://www.epa.gov/owow/wetlands/wetwalk.pdf) (Wetland Walk Manual) and [www.epa.gov/owow/wetlands/wetwork.pdf](http://www.epa.gov/owow/wetlands/wetwork.pdf) (Wetland Walk Supplement: Worksheets).

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## Introduction

The U.S. Environmental Protection Agency (EPA) is committed to helping landowners, farmers, schools, and the general public learn more about the functions and benefits of wetlands. EPA has empowered many state environmental agencies to conserve and protect our remaining wetlands, and to restore those that are threatened or impaired. These goals can only be accomplished through public participation and education. For these reasons and many more, the West Virginia Department of Environmental Protection's (DEP), Division of Water Resources (DWR) is initiating a pilot program called, the West Virginia Wetland Walk Program.

The purpose of this program is to give all West Virginian's the opportunity to become partners in learning about this valuable resource, and at the same time, collect information that will help identify trends in wetland locations and conditions throughout West Virginia. The West Virginia Wetland Walk program is a companion program to the West Virginia Save Our Streams (WVSOS) program.

The contents of the Wetland Walk Manual are to a large extent, an adaptation of U.S. EPA, Region 10 "Wetland Walk Manual". Various other resources also contributed to its contents. A complete list can be found in the reference section. For more information on U.S. EPA, Region 10 programs, write to: U.S. EPA Region 10 Office of Water, 1200 6<sup>th</sup> Avenue, Seattle, Washington 98101.

## Who is in Charge?

You are! Although U.S. EPA and DEP are responsible for the development of West Virginia Wetland Walk, we view this program as a grass roots tool that citizens can use to help protect and restore their local environment. We hope you will use this manual to develop locally organized, long-term wetland monitoring programs in your area. If such an effort already exists, we hope this manual will inspire you, your friends and family to coordinate your efforts with those groups.

The West Virginia Wetland Walk program is designed to provide information and support to local organizations. We encourage your organization to send all information collected to the citizens monitoring coordinator at the address indicated on the survey sheets, found at the back of this manual. At some future date, electronic forms of the survey sheets will be available, in Microsoft excel format. The information from the field sheets can be transferred to the excel forms, which can then be submitted by e-mail. If you start a Wetland Walk group in your area, please let us know!

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## What is a Wetland?

Wetlands are areas of land that are wet at least part of the year. They are characterized by their hydrology (water), hydric soils (soils that form due to the presence of water), and hydrophytic vegetation (plants adapted to living in saturated conditions). Wetlands generally include marshes, wet meadows, swamps, bogs, seeps and seasonally flooded bottomland hardwood forests. Wetlands will sometimes form in shallow water zones along streams, rivers, ponds and small lakes.

The U.S. Fish and Wildlife Service (FWS) developed a technical definition of wetlands for the purpose of conducting a nationwide inventory. According to the U.S FWS: wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is covered by shallow water. For the purposes of classification, wetlands must have one or more of the following attributes: (1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly hydric soils; and (3) the substrate is non-soil and is saturated with water or covered by shallow water during the growing season.

In recent years we have become increasingly aware of the important roles these complex ecosystems play in maintaining the health of our environment and the quality of our water. For example, wetlands perform all of the following functions:

- Provide fish and wildlife habitat;
- Support complex food webs;
- Absorb water to reduce flooding and damage from storms;
- Trap sediment;
- Provide erosion control;
- Improve water quality;
- Replenish groundwater and help maintain stream flows by releasing water during dry periods;
- and
- Provide open space and aesthetic value.

You do not need extensive knowledge of wetland ecosystems to complete the survey forms in this manual. West Virginia Wetland Walk is designed to gather observational information. There are no right or wrong answers. We are asking for your observations and assessment of wetland conditions based on your best judgment. If you are in doubt, do not feel you have to answer a question. It is our hope that you will enjoy this opportunity to understand and appreciate the roles wetlands plays in our environment. You will also be helping others by providing useful information on the wetlands found in your area.

## Before you Begin your Walk

1. We encourage you to contact groups involved in environmental issues in your area (watershed associations, conservation agencies, colleges, etc.). These groups may be able to provide you with information and background on local wetland sites. Also, your survey information may be useful to these groups, as well as state and federal environmental agencies.
2. Choose the general area for your wetland walk prior to visiting the site depending on your goals. You may wish to collect information at a familiar wetland, one that is close to your residence or work place, you may decide to do a series of wetland sites in a watershed to collect baseline data, or you may concentrate your efforts in areas suspected of being polluted. We recommend wetland walks being completed a minimum of twice per year (once in the spring and again in the fall). However, visiting your chosen sites during each season will give you a better idea of the changes that occur over time. It is also a good idea to visit your wetland sites during and after storm events to observe their natural buffering capacities or to determine the effects of human impacts due to construction or some other land use.

3. Find a U.S. Geological Survey (USGS) topographic map of your area. These “topo” maps are valuable tools. They show such things as towns, elevation (contour lines), waterways, roads and many more features of the land. Topo maps are also used to determine the latitude and longitude at your site. Latitudes and longitudes are necessary to accurately pinpoint the location of your wetland sites. DWR recommends using a 7½-minute quad map (1:24,000 scale where 11 inches = 4 miles). These are available in many local sporting good stores. Your local Soil Conservation District Office may be able to provide you with a photocopy of a specified quad, or you can order topo maps directly from USGS, by calling 1-800-USA-MAPS. Topo maps are even available on the Internet at <http://www.maptech.com>. This website offers a free search engine which allows you to select a state and enter a location (town, stream etc.) to find the appropriate topo map. Various tools for moving around the map, zooming in and out, printing and saving, and determining latitude and longitude are also included.
4. Finally, we recommend that you read through the Wetland Walk Manual and survey forms before you begin your walk. You will need a topo map and one-set of survey sheets for each wetland site. There are also a variety of additional pieces of equipment (listed below), which are extremely useful for recording conditions during your walk. You may be able to think of others that better fit your specific needs. Equipment needs include:
  - Clipboard and/or field notebook;
  - Field guides (birds, plants, animal tracks, amphibians, etc.);
  - Binoculars and/or hand lens;
  - Camera for seasonal documentation from fixed photo-points.

## **Safety Considerations**

You are now ready to begin your wetland walk. However, as with many things, there is a certain amount of risk involved in undertaking this type of survey. Please be aware of the risk and prepare yourself, as much as possible. Consider the following precautions:

- Get permission of landowners prior to crossing any private property, posted or not! Never enter any area without prior permission. We recommend using public access points.
- Always work with a group, or at a minimum, one additional person.
- Be careful of ticks, poison oak/ivy, nettles, biting/stinging insects, snakes etc. Bring repellent and/or the appropriate medication for possible allergic reactions.
- Wear long pants, boots (waders), windbreaks, hats etc. to protect against the conditions. It is a good idea to always apply sunscreen lotions; many times the water from these areas intensifies the affects from the sun.
- Watch for stray dogs, cats, raccoons or other possible dangerous animals. Do not approach the animals, make loud noises to chase away the animals, or leave the area immediately if they appear sick or aggressive.
- The water is not safe to drink!
- Do not put yourself in danger to gather information. If for any reason you feel uncomfortable about conditions at or surrounding the site, stop your wetland walk and leave immediately. Your safety is much more important than any objectives of the walk.

## **Explanation of the Wetland Walk Survey Sheets**

Always use the survey sheets to record your observations. Feel free to attach additional information such as, copies of topo maps which pinpoint your wetland sites, photographs, or other background information. Below is a brief explanation of each section of the survey sheet.

**Background information:** Detailed information about the group or groups participating in the wetland walk.

- **Date:** The date of your walk.
- **Investigator:** The names of the persons completing the survey.
- **Affiliation:** The names of any pertinent groups to which you belong (watershed association, conservation club, school, or others).
- **Address:** Your mailing address.
- **Phone:** Your phone and fax numbers.
- **E-mail:** You or your groups e-mail address.

**Wetland location:** Detailed description of the wetland's location.

- **Directions to Site:** Describe specific directions to your site so that a person unfamiliar with the area can locate the site
- **County:** The county or counties in which the wetland is located.
- **State:** The state in which the wetland is located.
- **Nearest City or Town:** The city or town closest to the wetland.
- **Nearest Waterbody:** The name(s) of any bodies of water adjacent to the wetland.
- **Watershed:** The name of the watershed in which the wetland is located.
- **Latitude and Longitude:** The most widely used method to locate a site is by defining the latitude and longitude. If you plan to enter the information collected into a Geographic Information System (GIS) or if you plan to submit the information to agencies, latitude and longitudes are a must. Later in this manual you will find a section that explains the formulas used to calculate latitude and longitude using a topo map, ruler and pencil.
- **Description of Access:** A brief narrative description of your site.

**Weather conditions:** Cloud cover, air temperature and wind affect the level of wildlife activity in a wetland. Precipitation is of particular importance because it affects the flow, clarity and amount of water in the wetland. A good reference for weather conditions is your previous day local newspaper or weather report. Definitions of weather conditions established by the National Weather Service are as follows:

- **Storm:** 1 inch or more of precipitation within 24 hours, usually accompanied by winds.
- **Rain:**  $\frac{1}{8}$  inch of rain within 24 hours (a light steady rainfall).
- **Showers:**  $\frac{1}{8}$  to 1 inch of rain within 24 hours (intermittent and variable in intensity).
- **Overcast:** 90 to 100% cloud cover.
- **Partly Cloudy:** 10 to 90% cloud cover.
- **Clear:** 0 to 10% cloud cover.

**Sketch A Map:** Sketch a map of your wetland and mark a minimum of 3 observational points around it, which you will be using on a consistent basis. In your drawing, include areas of open water, vegetation (listing the dominant types), and observed water inflows and outflows. By using the same observation points during each visit (survey), you will create consistent information. If possible, the points selected should offer a comprehensive profile of the wetland. They should be selected so that the maximum amount of the survey area can be observed. If there are markedly different characteristics, which are not seen elsewhere, note them on your map and in the additional comment section. You should maintain a photographic record of your observations as a reference for yourself and others.

**Estimate the size of the wetland, excluding the buffer zones:** Size can be calculated if you have access to aerial photographic maps, which are often available from your local Farm Service Agency or Natural Resources Conservation Service Office. If an aerial photograph is not available, estimate the size of the wetland to the best of your knowledge. A useful benchmark is; a standard football field covers approximately 1 acre (1.03 acres). 1 acre = 4,840 square yards or 43,560 square feet.

**Estimate the average width of the buffer zones surrounding the wetland:** Buffer zones are undisturbed vegetated areas, which surround the wetland and provide some protection against land use effects. They provide varying degrees of protection based upon such things as, vegetative conditions (trees, shrubs, herbs and grasses), slope, and the type of adjacent land use disturbance. The most effective buffers are areas consisting mainly of native woody vegetation. These zones are critical because they provide a certain amount of protection against adjacent land use practices, and they begin the initial filtering and diffusion of runoff water and sediment caused by these land use practices (construction projects, agriculture, etc.). If the areas surrounding the wetland are anything other than undisturbed natural vegetation (a mowed lawn does not provide adequate buffer protection), then there are essentially no buffer zones. Describe these areas as completely as possible, noting the dominant types of vegetation. Include this on the sketch of your map. This section also contains a check box that allows you to estimate the width of the buffer zone along each side (north, south, east and west) of the wetland.

**Describe the dominant type of vegetation found within the wetland:** Usually, a wetland will exhibit one or more of the following vegetation types (it is important to note that many of the examples listed below are intermixed throughout all types of wetland areas):

- **Forested wetland:** These are often found along rivers and streams, although they can also be found in isolated depressions. The dominant vegetation types are trees (examples include, cedars, cottonwood, willows, red maples, some oaks, spruce, and others) over 20 feet tall with low growing herbaceous and woody vegetation beneath.
- **Scrub-Shrub wetland:** These are also found near streams, rivers and isolated depressions. These areas are also common bordering wet meadows, marshes etc. The dominant vegetation types are shrub-size and low growing woody vegetation (less than 20 feet tall). Examples include, some species of alders, buttonbush, rhododendrons, dogwoods, black willows etc.
- **Emergent wetland:** These areas are common in old abandoned fields, low lying areas in floodplains, depressions (seeps) along hillsides and highways. Their dominant types of vegetation are grasses and herbaceous plants (plants not having woody stems). The most obvious representatives are cattails, but there are a wide variety of species of plants associated with these areas.

**Describe the presence and extent of water, as well as the soil conditions of the wetland:** Water is the most critical element of wetlands. Its presence and level help define the type of vegetation found in the wetland. The movement and levels of water change in a wetland throughout the year. However, artificial methods of moving water in and out can have extreme impacts on the health and functions of the wetland. A checklist for water inflows and outflows is included in this section. Soil conditions go hand in hand with water conditions. The presence of gleyed (gray-colored) soils are important characteristics, and help to determine the extent of the wetland, even if no water is present. Another common soil condition of wetlands are dark-colored and stained soils indicating organic decomposition (peat).

**Describe the animals observed within the wetland:** A healthy wetland is home to a wide variety of animal life. Several checklists are included to note your observations. The presence of amphibians (frogs, toads and salamanders) are an especially important indicator due to their sensitivity to slight changes in environmental conditions. You should describe/name the species of animals observed, as much as possible, using your field guides and general knowledge.

**Describe the land uses and activities found in or adjacent to your wetland site:** Be sure to include these observations on your map. Adjacent land uses have a tremendous impact on the wetland ecosystem. Destruction of buffer zones can create changes that can affect the soils, vegetation and natural hydrology of the wetland system. Several checklists are included to note the types and percentages of land uses that are observed adjacent to and within the wetland. Human activities can adversely affect the delicate wetland ecosystems. Alteration of watercourses can cause flooding, destroy plant and animal life, and increase sediment load to the system.

## Instructions for Defining Latitude and Longitude

The steps in the table below will help you determine the latitude and longitude for your wetland walk. Latitude and longitude are defined in degrees, minutes and seconds. There are 60 seconds in a minute and 60 minutes in a degree. The symbols are as follows:

- ° = degrees;
- ' = minutes; and
- " = seconds.

### Longitude

1). Look at the right side (upper or lower corner) under the map name, or the second of two numbers separated by "x", to find the width scale (longitude) of the map.	
▪ If "7.5 Minute Series", enter 450	
▪ If "15 Minute Series", enter 900	
▪ If "7.5 x 15 Minute Series", enter 900	
▪ If "15 x 30 Minute Series", enter 900	
2). Using a ruler, measure the width of your map east to west (exclude borders).	
3). Divide #1 by #2 to the nearest whole number.	
4). Enter the longitude located in the lower right-hand corner.	
5). Using a ruler, measure (centimeters) from your site, straight across, to the right-hand side of the map.	
6). Multiply #5 by #3 to the nearest whole number.	
7). Convert #6 to minutes and seconds by dividing by 60. Your whole number after the division is the number of minutes, and the remainder is the number of seconds. For example, 215 can be divided by 60, 3-times. $215 - 180 = 35$ , so 215 converts to 3'35".	
8). Add # 4 to #7.	

### Latitude

9). Look at the right side (upper or lower corner) under the map name or the second of two numbers separated by "x", to find the height scale (latitude) of the map.	
▪ If "7.5 Minute Series", enter 450	
▪ If "15 Minute Series", enter 900	
▪ If "7.5 x 15 Minute Series", enter 900	
10). Using a ruler, measure the width of your map, north to south (exclude borders).	
11). Divide #9 by #10 to the nearest whole number.	
12). Enter the latitude located in the lower right-hand corner.	
13). Using a ruler, measure (centimeters) from your site straight down the bottom of the map.	
14). Multiply #13 by #11.	
15). Convert #14 to minutes and seconds by dividing by 60. Your whole number after division is the number of minutes, and the remainder is the number of seconds(see example under #7 above).	
16). Add #15 to #12.	

# Wetland Walk Survey Sheets

## 1. Background Information

Date:	Investigator(s):
Affiliation:	
Address:	
Phone #:	Fax #:
E-mail:	

## 2. Wetland Location

Directions to site:			
County:	State:	Nearest Town:	
Body (ies) of water adjacent to wetland:			
Watershed (if known):			
<b>Latitude</b>	Degrees:	Minutes:	Seconds:
<b>Longitude</b>	Degrees:	Minutes:	Seconds:
Description of access:			

## 3. Weather Conditions

Air temperature (°F or °C):	Note if measured or estimated
Wind Speed:	Wind Direction:

Use the "Beaufort Wind Scale" below to help estimate the wind speed.

### Beaufort Wind Scale

Beaufort Number	Description	Observation
0	Calm (0 – 1 mph)	Smoke rises vertically
1	Light air (2 – 3 mph)	Smoke drifts slowly
2	Slight breeze (4 – 7 mph)	Leaves rustle
3	Gentle breeze (8 – 12 mph)	Twigs move
4	Moderate breeze (13 – 18 mph)	Branches move
5	Fresh breeze (19 – 24 mph)	Small trees sway
6	Strong breeze (25 – 31 mph)	Large branches sway
7	Moderate gale (32 – 58 mph)	Trees moving (walking difficult)
8	Fresh gale (39 – 46 mph)	Twigs break off trees
9	Strong gale (45 – 54 mph)	Branches break
10	Whole gale (55 – 63 mph)	Trees snap
11	Storm (66 – 72 mph)	Widespread damage
12	Hurricane (73 + mph)	

### Weather at the time of your visit

check below

Clear (cloud cover 0 – 10%)	
Partly Cloudy (cloud cover 10 – 90%)	
Overcast (cloud cover 90 – 100%)	
Showers (light rain or snow showers)	
Storm (heavy rain)	
Estimate precipitation amounts over the past 48-hours	

**Use the box below to sketch out a map of your wetland(s).** Mark up to three observational points you will be using. In your drawing, include areas of open water, vegetation, observed water inflows and outflows, human impacts within the wetland, and any other feature you feel is important.

4. Estimate the wetland size in acres (excluding buffer zones).

<b>Less than one acre:</b>	<input type="checkbox"/>	<b>Acres:</b>	<input type="text"/>
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5. Estimate the average width of the buffer zones (zones of undisturbed vegetation) surrounding each side of the wetland. Check the appropriate box.

<b>North</b>		<b>South</b>		<b>East</b>		<b>West</b>	
No apparent buffer	<input type="checkbox"/>						
Less than 50 ft	<input type="checkbox"/>						
50 to 100 ft	<input type="checkbox"/>						
Greater than 100 ft	<input type="checkbox"/>						

6. To further define the wetland, check the most dominant (more than 30%) type of vegetation.

The dominant vegetation are trees/shrubs over 20 ft tall	
The dominant vegetation is woody vegetation less than 20 ft tall	
The dominant vegetation is grasses and other herbaceous plants (emergent)	
Other vegetation types (describe):	

7. An important factor in describing wetlands is the presence and extent of water and the soil conditions. Check the description(s), which best describe your wetland site.

There is standing water present (yes/no)		If so, is it seasonal		or, year round	
There is no visible standing water at the time of visit					
There is no visible standing water, but there is evidence of past standing water					
▪ If water is present, estimate how much area of the wetland is covered.					
0 – 30 %		30 – 60 %		60 – 100 %	
▪ If there is no standing water, check the soil conditions (soil sogginess).					
Shoes become wet when walking on the soil					
When soil is squeezed, water seeps out					
Soil is dry					
Soil is dry, but upon digging into the soil (use a very small bore hole), soil appears gray in color					

8. Identify any visible areas or structures/pathways through which water flows into the wetland(s). Draw and label them on your map. Check the appropriate pathway below.

Streams		Culverts		Ditches	
Storm drains		Pond/lake		Pump	

9. Identify any visible areas or structures/pathways through which water flows out of the wetland(s). Draw and label them on your map.

Streams		Culverts		Ditches	
Storm drains		Pond/lake		Pump	

10. A healthy wetland is home to a variety of animals. Indicate, below, the types of wildlife observed during your wetland walk.

Fish		Aquatic insects		Flying insects	
Birds		Ducks		Frogs	
Lizards		Salamanders		Deer	
Rabbits		Mice		Domestics	
Pasture animals (describe):				Snakes	
Identify, as many as possible, the species of animals you checked above.					

11. Carcasses of dead fish, or other wildlife were observed during your wetland walk (yes or no). Identify these, as much as possible, and make their location on your wetland map.


12. There is evidence of (scat, tracks, etc.) of any of the following, which were observed during wetland walk.

Birds		Ducks		Frogs	
Snakes		Mice		Rabbits	
Deer		Domestics		Other: describe	

## Human Impacts

1. Indicate which of the following land uses are found in or adjacent to the wetland(s). Include as many of these observations as possible, on your wetland map. Check the appropriate box and estimate the percentage of the wetland area affected.

Undisturbed natural vegetation		%	Residential housing		%
Construction site		%	Agriculture (cropland)		%
Non-commercial development		%	Agriculture (pastureland)		%
Industrial development		%	Agriculture (poultry farms)		%
Roads (paved or unpaved)		%	Railroads		%
Logging		%	Mining (deep or strip mine)		%
Other (describe):		%	Other (describe):		%

2. Indicate which, if any, of the following activities appear to be taking place within the wetland area.

Dumping of soil, gravel, or vegetation	
Dumping of man-made materials (describe material):	
Grading, as evidenced by tracks or scrapes in the soil	
Draining of water, as evidenced by pipes or ditches leaving the wetland area	
Channelization of water, as evidenced by ditches or trenches	
Bulkheads between wetland and lake or pond areas	
Tracks caused by recreational vehicles (describe):	
Livestock access, evidenced by animals observed or tracks observed	
Storm water intrusions, as evidenced by pipes/drains from parking lots, roads, etc.	
Other activities (describe):	

3. Indicate which, if any, of the following signs of wetland degradation are present.

Silt, sand, or gravel deposits	
Erosion along the banks of the wetland, or streams entering the wetland area	
Other (describe):	

4. **Additional comments:** Use the space below to make any significant comments regarding information not included on this survey, or to expand further upon information that is included.


Submit this survey, along with a copy of topographic maps, pictures and any additional background information collected to the address below. If you have any questions regarding this survey, or would like to arrange a wetland training session, send an e-mail to [Timohty Craddock](mailto:Timohty.Craddock), or write to the address below.